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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/747,647	12/29/2003	Gilbert E. Cohen		5713

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EXAMINER

DIAMOND, ALAN D

ART UNIT PAPER NUMBER

1753

DATE MAILED: 11/16/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

21

Office Action Summary

Application No.

10/747,647

Applicant(s)

COHEN ET AL.

Examiner

Alan Diamond

Art Unit

1753

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 29 December 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-25 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-25 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 29 December 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

22 **Attachment(s)**

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: _____.

DETAILED ACTION

Priority

1. If applicant desires to claim the benefit of a prior-filed application under 35 U.S.C. 120, a specific reference to the prior-filed application in compliance with 37 CFR 1.78(a) must be included in the first sentence(s) of the specification following the title or in an application data sheet. For benefit claims under 35 U.S.C. 120, 121 or 365(c), the reference must include the relationship (i.e., continuation, divisional, or continuation-in-part) of the applications.

If the instant application is a utility or plant application filed under 35 U.S.C. 111(a) on or after November 29, 2000, the specific reference must be submitted during the pendency of the application and within the later of four months from the actual filing date of the application or sixteen months from the filing date of the prior application. If the application is a utility or plant application which entered the national stage from an international application filed on or after November 29, 2000, after compliance with 35 U.S.C. 371, the specific reference must be submitted during the pendency of the application and within the later of four months from the date on which the national stage commenced under 35 U.S.C. 371(b) or (f) or sixteen months from the filing date of the prior application. See 37 CFR 1.78(a)(2)(ii) and (a)(5)(ii). This time period is not extendable and a failure to submit the reference required by 35 U.S.C. 119(e) and/or 120, where applicable, within this time period is considered a waiver of any benefit of such prior application(s) under 35 U.S.C. 119(e), 120, 121 and 365(c). A benefit claim filed after the required time period may be accepted if it is accompanied by a grantable

Art Unit: 1753

petition to accept an unintentionally delayed benefit claim under 35 U.S.C. 119(e), 120, 121 and 365(c). The petition must be accompanied by (1) the reference required by 35 U.S.C. 120 or 119(e) and 37 CFR 1.78(a)(2) or (a)(5) to the prior application (unless previously submitted), (2) a surcharge under 37 CFR 1.17(t), and (3) a statement that the entire delay between the date the claim was due under 37 CFR 1.78(a)(2) or (a)(5) and the date the claim was filed was unintentional. The Director may require additional information where there is a question whether the delay was unintentional. The petition should be addressed to: Mail Stop Petition, Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450.

If the reference to the prior application was previously submitted within the time period set forth in 37 CFR 1.78(a), but not in the first sentence(s) of the specification or an application data sheet (ADS) as required by 37 CFR 1.78(a) (e.g., if the reference was submitted in an oath or declaration or the application transmittal letter), and the information concerning the benefit claim was recognized by the Office as shown by its inclusion on the first filing receipt, the petition under 37 CFR 1.78(a) and the surcharge under 37 CFR 1.17(t) are not required. Applicant is still required to submit the reference in compliance with 37 CFR 1.78(a) by filing an amendment to the first sentence(s) of the specification or an ADS. See MPEP § 201.11.

Drawings

2. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description: reference sign 34 which is mentioned at page 7, line 2. Corrected drawing

sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

3. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference character(s) not mentioned in the description: reference sign 100 in Figure 6. Corrected drawing sheets in compliance with 37 CFR 1.121(d), or amendment to the specification to add the reference character(s) in the description in compliance with 37 CFR 1.121(b) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

4. Figure 6 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Comments

5. In the set of claims filed with the preliminary amendment dated 12/29/2003, the set of claims having the heading "Unmarked Set With Amendments" has been examined by the Examiner and is referred to below. Claims 1-25 are pending in the application.

Specification

6. The disclosure is objected to because of the following informalities: In the sentences bridging from the last line of page 6 to the fourth line on page 7 of the specification, the non-convex side of the secondary concentrator, as seen in Figure 4, serves as a quaternary reflector, not a quintiary reflector. Furthermore, there is no fifth focal zone in said Figure 4. It is suggested that the entire text starting in page 6, last line with "In this case, ..." and ending with "... fifth focal zone." on page 7 at line 4 be changed to the following: "In this case, the non-convex side of the secondary reflector (having a concave configuration) serves as a quaternary reflector having a reflective

Art Unit: 1753

surface (34) having a fourth focal zone.. Light energy reflecting from the quaternary reflector is directed to the fourth focal zone.”

Appropriate correction is required.

7. The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction of the following is required: The subject matter in claim 14, i.e., a second linear receiver “disposed in a conductive relationship with the non-convex side of the secondary reflector” lacks proper antecedent basis in the specification. The specification is silent concerning such a conductive relationship.

Claim Objections

8. Claim 18 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. Claim 18 does not further limit claim 17 because a primary reflector having a circular concave configuration cannot also have a parabolic configuration. Likewise, a secondary reflector having a circular convex configuration cannot also have a hyperbolic configuration.

Claim Rejections - 35 USC § 112

9. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Art Unit: 1753

10. Claims 3, 16, 18, and 19 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 3 is indefinite because “tertiary reflectors” at lines 1-2 lack positive antecedent support in claim 1. It is suggested that “reflectors” at line 2 of claim 3 be changed to “reflector”.

Claim 16 is indefinite because it depends from claim 65, and there is no claim 65.

Claim 18 is indefinite because it is not clear how the primary reflector having a circular concave configuration can also have a parabolic configuration. Likewise, it is not clear how the secondary reflector having a circular convex configuration can also have a hyperbolic configuration.

Claim 19 is indefinite because “tertiary reflectors” at lines 1-2 lack positive antecedent support in claim 17. It is suggested that “reflectors” at line 2 of claim 19 be changed to “reflector”.

Claim Rejections - 35 USC § 102

11. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

12. Claims 1-4, 6-10, and 15-20 are rejected under 35 U.S.C. 102(b) as being anticipated by Horne (U.S. Patent 4,313,024).

Horne teaches a light energy trough concentrator (Figures 5 and 6) and a light energy dish concentrator (Figure 3) comprising a primary reflector (32), secondary reflector (34) and tertiary reflector (44), as here claimed (see also col. 3, line 4 through col. 5, line 13). The focal zone of the third reflector (44) is at the black body (38), which is in the volume defined by the reflector (44) (see Figure 6; and col. 3, lines 36-39). Note in Figures 5 and 6, that light reflecting from the primary reflector (32) is directed first to the secondary reflector (34), next to the tertiary reflector (44), and finally in the third focal zone at the black body (38). The instant claims encompass the situation in Horne where light is "directed" to the third reflector (44) but actually strikes the black body (38) at the third focal zone before reflecting off of the third reflector (44). Since Horne teaches the limitations of the instant claims, the reference is deemed to be anticipatory.

13. Claims 1-4, 6-10, and 15-20 are rejected under 35 U.S.C. 102(b) as being anticipated by Meinel et al (U.S. Patent 4,131,485).

Meinel et al teaches a light energy trough concentrator (Figures 2 and 3) and a light energy dish concentrator (Figures 1 and 4) comprising a primary reflector (2, 2'), secondary reflector (4, 102) and tertiary reflector (6), as here claimed (see also col. 2, line 35 through col. 9, line 44). The focal zone of the third reflector (6) is in the volume defined by the reflector (6), and this is most apparent in Figure 4, where the receiver (8) is within but near the volume boundary. Note in Figures 1, 2, and 4, that light reflecting from the primary reflector (2, 2') is directed first to the secondary reflector (4, 102)), next

Art Unit: 1753

to the tertiary reflector (6), and finally in the third focal zone. Since Meinel et al teaches the limitations of the instant claims, the reference is deemed to be anticipatory.

Claim Rejections - 35 USC § 103

14. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

15. Claims 1-10 and 13-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Horne (U.S. Patent 4,313,024) in view of Weinstein et al (U.S. Patent 3,990,914) and Kelly (U.S. Patent 4,168,696).

Horne teaches a light energy trough concentrator (Figures 5 and 6) and a light energy dish concentrator (Figure 3) comprising a primary reflector (32), secondary reflector (34) and tertiary reflector (44), as here claimed (see also col. 3, line 4 through col. 5, line 13). The focal zone of the third reflector (44) is at the black body (38), which is in the volume defined by the reflector (44) (see Figure 6; and col. 3, lines 36-39).

Note in Figures 5 and 6, that light reflecting from the primary reflector (32) is directed first to the secondary reflector (34), next to the tertiary reflector (44), and finally in the third focal zone at the black body (38). The instant claims encompass the situation in Horne where light is "directed" to the third reflector (44) but actually strikes the black body (38) at the third focal zone before reflecting off of the third reflector (44). Horne teaches the limitations of the instant claims, other than the difference which is discussed below.

Horne does not specifically teach having the concave side of its reflector (34) be reflective defining a fourth focal zone, and a light receiver disposed in said fourth focal zone. However, the use of a reflective concave surface so as to direct light to a light receiver at the focal zone of the concave reflector is well known and conventional in the art, as seen in Figure 1 of Weinstein et al and Figure 6 of Kelly. It would have been obvious to one of ordinary skill in the art at the time the invention was made to have made the concave side of Horne's reflector (34) to be reflective defining a fourth focal zone, and a light receiver disposed in said fourth focal zone because it is well known and conventional in the art to make use of a reflective concave surface so as to direct light to a light receiver at the focal zone of the concave reflector, as shown by Weinstein et al and Kelly.

16. Claims 1-4, 6-12, and 15-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Horne (U.S. Patent 4,313,024) in view of Kruer (U.S. Patent 5,062,899).

Horne teaches a light energy trough concentrator (Figures 5 and 6) and a light energy dish concentrator (Figure 3) comprising a primary reflector (32), secondary reflector (34) and tertiary reflector (44), as here claimed (see also col. 3, line 4 through col. 5, line 13). The focal zone of the third reflector (44) is at the black body (38), which is in the volume defined by the reflector (44) (see Figure 6; and col. 3, lines 36-39). Note in Figures 5 and 6, that light reflecting from the primary reflector (32) is directed first to the secondary reflector (34), next to the tertiary reflector (44), and finally in the third focal zone at the black body (38). The instant claims encompass the situation in

Art Unit: 1753

Horne where light is "directed" to the third reflector (44) but actually strikes the black body (38) at the third focal zone before reflecting off of the third reflector (44). Horne teaches the limitations of the instant claims, other than the difference which is discussed below.

Horne does not specifically teach tracking diurnal solar movement. However, the tracking of diurnal solar movement is conventional in the art, as shown by Kruer (see col. 4, lines 35-48 of Kruer). It would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified Horne's light energy concentrator so as to track diurnal solar movement because the tracking of diurnal solar movement is conventional in the art, as shown by Kruer.

17. Claims 1-10 and 13-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Meinel et al (U.S. Patent 4,131,485) in view of Weinstein et al (U.S. Patent 3,990,914) and Kelly (U.S. Patent 4,168,696).

Meinel et al teaches a light energy trough concentrator (Figures 2 and 3) and a light energy dish concentrator (Figures 1 and 4) comprising a primary reflector (2, 2'), secondary reflector (4, 102) and tertiary reflector (6), as here claimed (see also col. 2, line 35 through col. 9, line 44). The focal zone of the third reflector (6) is in the volume defined by the reflector (6), and this is most apparent in Figure 4, where the receiver (8) is within but near the volume boundary. Note in Figures 1, 2, and 4, that light reflecting from the primary reflector (2, 2') is directed first to the secondary reflector (4, 102)), next to the tertiary reflector (6), and finally in the third focal zone. Meinel et al teaches the limitations of the instant claims, other than the difference which is discussed below.

Meinel et al does not specifically teach having the concave side of its reflector (4, 102) be reflective defining a fourth focal zone, and a light receiver disposed in said fourth focal zone. However, the use of a reflective concave surface so as to direct light to a light receiver at the focal zone of the concave reflector is well known and conventional in the art, as seen in Figure 1 of Weinstein et al and Figure 6 of Kelly. It would have been obvious to one of ordinary skill in the art at the time the invention was made to have made the concave side of Meinel et al's reflector (4, 102) to be reflective defining a fourth focal zone, and a light receiver disposed in said fourth focal zone because it is well known and conventional in the art to make use of a reflective concave surface so as to direct light to a light receiver at the focal zone of the concave reflector, as shown by Weinstein et al and Kelly.

18. Claims 1-4, 6-12, and 15-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Meinel et al (U.S. Patent 4,131,485) in view of Kruer (U.S. Patent 5,062,899).

Meinel et al teaches a light energy trough concentrator (Figures 2 and 3) and a light energy dish concentrator (Figures 1 and 4) comprising a primary reflector (2, 2'), secondary reflector (4, 102) and tertiary reflector (6), as here claimed (see also col. 2, line 35 through col. 9, line 44). The focal zone of the third reflector (6) is in the volume defined by the reflector (6), and this is most apparent in Figure 4, where the receiver (8) is within but near the volume boundary. Note in Figures 1, 2, and 4, that light reflecting from the primary reflector (2, 2') is directed first to the secondary reflector (4, 102)), next

Art Unit: 1753

to the tertiary reflector (6), and finally in the third focal zone. Meinel et al teaches the limitations of the instant claims, other than the difference which is discussed below.

Meinel et al does not specifically teach tracking diurnal solar movement.

However, the tracking of diurnal solar movement is conventional in the art, as shown by Kruer (see col. 4, lines 35-48 of Kruer). It would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified Meinel et al's light energy concentrator so as to track diurnal solar movement because the tracking of diurnal solar movement is conventional in the art, as shown by Kruer.

Double Patenting

19. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

20. Claims 1-25 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1 and 2 of U.S. Patent No. 6,668,820.

Art Unit: 1753

Although the conflicting claims are not identical, they are not patentably distinct from each other because, although the claims of said patent do not specifically recite that the third focal zone is disposed with the volume defined by the tertiary reflector, this would have been obvious to one of ordinary skill in the art at the time the invention was made, particularly in view of the fact that claim 1 of said patent teaches that the tertiary reflector has a linear non-imaging configuration defining a third focal zone, and that there is a linear receiver disposed within the third focal zone.

Conclusion

21. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

U.S. Patents 3,988,166, 4,045,246, 4,147,158 4,169,738, 4,173,213, 4,249,516, 5,578,140, 5,979,438 are hereby made of record.

22. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Alan Diamond whose telephone number is 571-272-1338. The examiner can normally be reached on Monday through Friday, 5:30 a.m. to 2:00 p.m. ET.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nam Nguyen can be reached on 571-272-1342. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR.

Art Unit: 1753

Status information for unpublished applications is available through Private PAIR only.

For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Alan Diamond
Primary Examiner
Art Unit 1753

A handwritten signature in black ink, appearing to read 'Alan Diamond', with a stylized flourish at the end.

Alan Diamond
November 10, 2005